



226812

FORM 223-1

NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKE SHORE EAST 10 D #2Date of Verification Survey: APR. 11, 2003Time of Verification Survey 10 AM. am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. BerggreenDate APR. 11, 2003Print Name RICHARD G. BERGGREENPrint Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 15, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 15, 2003Print Name FREDRICK A. MUCKEPrint Title ON-SCENE COORDINATORFor USEPA Region 5 Fredrick A. Mucke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKEHURST EAST 9D/9C SE

Date of Verification Survey: APR. 11, 2003

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. Berggren

Date APR. 11, 2003

Print Name RICHARD G. BERGGREN

Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 15, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 15, 2003

Print Name FREDRICK A. MCKE

Print Title ON-SCENE COORDINATOR

For USEPA Region 5 Fredrick A. Mcke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: Lakeside East 9D/9C NE

Date of Verification Survey: Apr. 11, 2003

Time of Verification Survey 10:00 Am am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: THI S. Berggren

Date Apr. 11, 2003

Print Name RICHARD G. BERGGREN

Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 15, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 15, 2003

Print Name FREDRICK A. MICKER

Print Title ON-SCENE COORDINATOR

For USEPA Region 5 Fredrick A. Micker

APR-11-2003 P. 02/03 5535 847 279 248

SLS

APR-11-2003 14:42

Nutranel Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for April 11, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
784	4/11/03	EPA	82865 8D/BC NE EPA#1	28.7	1.84	3.4	1.83	0.9	0.08	1.28	1.81	1.848418548
785	4/11/03	EPA	82866 8D/BC NE EPA#2	27.8	5.16	3.68	0.87	0.91	1.54	1.32	2.21	1.809277862
786	4/11/03	EPA	82861 8D/BC NE EPA#3	27.4	3.87	2.52	0.87	0.68	0.44	0.84	1.41	1.148884321
787	4/11/03	EPA	82862 8D/BC NE EPA#4	27.2	0.83	2.32	1	0.63	1.49	0.8	2.43	1.088680008
788	4/11/03	EPA	82863 8D/BC NE EPA#5	28.1	-0.14	2.46	1.78	0.68	0.88	0.83	2.48	1.140384888

Average Total Radium (Th-232+Ra-226) Concentration for : 8D/BC NE $\bar{x} = 2.02$ $\sigma = 0.48$ 2.02 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
789	4/11/03	EPA	82864 8D/BC SE EPA#1	28.8	-2.40	2.58	2.81	0.71	1.17	0.88	3.86	1.210185278
790	4/11/03	EPA	82865 8D/BC SE EPA#2	32.2	7.02	2.87	1.88	0.78	1.82	1.1	3.8	1.348488228
791	4/11/03	EPA	82866 8D/BC SE EPA#3	32.8	3.02	2.17	0.88	0.67	3.78	0.84	4.6	1.018138458
792	4/11/03	EPA	82867 8D/BC SE EPA#4	30.7	-0.4	3.88	0.88	0.88	3.1	1.42	3.78	1.714088808
793	4/11/03	EPA	82868 8D/BC SE EPA#5	30.3	0.38	2.53	2.88	0.88	0.88	0.8	3.28	1.110180188

Average Total Radium (Th-232+Ra-226) Concentration for : 8D/BC SE $\bar{x} = 3.67$ $\sigma = 0.61$ 3.70 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
784	4/11/03	EPA	82869 8D/BC NW EPA#1	28.8	-2.88	2.37	1.87	0.84	1.28	0.81	2.88	1.112818888
785	4/11/03	EPA	82870 8D/BC NW EPA#2	28.7	6.28	2.88	0.38	0.7	3.08	1.02	2.42	1.237883888
786	4/11/03	EPA	82871 8D/BC NW EPA#3	28.4	-0.78	1.88	2.48	0.82	0.81	0.72	2.45	0.888144132
787	4/11/03	EPA	82872 8D/BC NW EPA#4	28.8	8.88	2.88	0.82	0.87	2.84	0.87	3.48	1.17888778
788	4/11/03	EPA	82873 8D/BC NW EPA#5	28.7	-1.84	2.88	1.84	0.81	1.47	1.17	2.81	1.428028847

Average Total Radium (Th-232+Ra-226) Concentration for : 8D/BC NW $\bar{x} = 2.82$ $\sigma = 0.43$ 2.84 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
789	4/11/03	EPA	82874 8D/BC SW EPA#1	21.8	0.88	3.74	1.28	1.04	8.88	1.44	1.81	1.778288288
800	4/11/03	EPA	82875 8D/BC SW EPA#2	24.4	4.88	3.34	0.84	0.88	3.31	1.31	3.98	1.888728778
801	4/11/03	EPA	82876 8D/BC SW EPA#3	22.3	2.01	2.78	0.88	0.74	2.92	1.1	2.88	1.828748074
802	4/11/03	EPA	82877 8D/BC SW EPA#4	26.3	0.8	2.87	2.11	0.71	1.87	0.88	4.08	1.218277472
803	4/11/03	EPA	82878 8D/BC SW EPA#5	24.3	7.41	3.18	1.32	0.82	4.88	1.14	1.22	1.804289178

Average Total Radium (Th-232+Ra-226) Concentration for : 8D/BC SW $\bar{x} = 2.64$ $\sigma = 1.13$ 2.64 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty	
804	4/11/03	EPA	82576 10DW2 EPA#1	28.8	0.83	2.84	0.48	0.71	1.38	1.04	1.88	1.255245808	
805	4/11/03	EPA	82580 10DW2 EPA#2	28.7	0.89	2.87	1.85	0.79	1.8	1.11	3.25	1.38242431	
806	4/11/03	EPA	82581 10DW2 EPA#3	28.7	2.85	3.18	0.95	0.84	1.25	1.2	2.23	1.484788874	
807	4/11/03	EPA	82582 10DW2 EPA#4	30.8	8.08	3.72	1	0.83	-0.87	1.25	1.00	0.13	1.590282804
808	4/11/03	EPA	82583 10DW2 EPA#5	30.8	0.85	2.35	1.72	0.65	0.25	0.89	1.97	1.102088826	
Average Total Radium (Th-232+Ra-226) Concentration for :					10DW2		$\bar{x} = 2.07$ $\sigma = 0.81$		1.88		pCi/g		

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKEHORE EAST IIC #1
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. Berggreen
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003
Print Name FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick A. Micke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: LAKE SHORE EAST 11 C #2Date of Verification Survey: APR. 4, 2003Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. BerggreenDate APR. 7, 2003Print Name RICHARD G. BERGGREENPrint Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003Print Name FREDRICK A. MICKIEPrint Title ON-SCENE COORDINATORFor USEPA Region 5 Fredrick A. Mickie

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKE SHORE EAST 11 D
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. Berggreen
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003
Print Name FREDRICK A. MUCKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick A. Mucke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: LAKEHORE EAST 10 CDate of Verification Survey: APR. 4, 2003Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: RLG. BerggrenDate APR. 7, 2003Print Name RICHARD G. BERGGREENPrint Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003Print Name FREDRICK A. MICKPrint Title ON-SCENE COORDINATORFor USEPA Region 5 Fredrick A. Mick

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: LAKESHORE EAST 10 D # 1Date of Verification Survey: APR. 4, 2003Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. BerggreenDate APR. 7, 2003Print Name RICHARD G. BERGGREENPrint Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003Print Name FREDRICK A. MICKEPrint Title ON-SCENE COORDINATORFor USEPA Region 5 Fredrick A. Mucke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKESHORE EAST 9C
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. Berggreen
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003
Print Name FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick A. Micke

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: LAKE SHORE EAST 10 D #3Date of Verification Survey: APR. 4, 2003Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Rd G. BerggreenDate APR. 7, 2003Print Name RICHARD G. BERGGREENPrint Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on April 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date April 16, 2003Print Name FREDRICK A. MICKEPrint Title ON-SCENE COORDINATORFor USEPA Region 5 Fredrick A. Micki

Exclusion Zone Confirmatory Samples for April 4, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
738	4/4/03	EPA	S2517 11C#1 EPA#1	38.4	1.16	2.18	0.33	0.58	1.27	0.64	1.6	1.020784012
739	4/4/03	EPA	S2518 11C#1 EPA#2	36.7	2.08	2.49	0.27	0.68	1.47	0.98	1.74	1.182811804
740	4/4/03	EPA	S2519 11C#1 EPA#3	33.5	-1.89	1.84	0.9	0.45	0.38	0.64	1.26	0.7823682
741	4/4/03	EPA	S2520 11C#1 EPA#4	38.5	8.6	3.15	1.48	0.8	-0.42	1.08	1.04	1.344028808
742	4/4/03	EPA	S2521 11C#1 EPA#5	36.8	6.03	2.54	-0.4	0.64	3.25	0.97	9.25	1.18211018

Average Total Radium (Th-232+Ra-226) Concentration for : 11C#1 $\bar{X} = 1.78$ $\sigma = 0.87$ 1.70 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
743	4/4/03	EPA	S2522 11C#2 EPA#1	31.8	5.83	2.59	1.6	0.87	2.74	0.97	4.24	1.17888779
744	4/4/03	EPA	S2523 11C#2 EPA#2	32.3	10.52	3.22	0.88	0.81	2.34	1.17	3.02	1.423024947
745	4/4/03	EPA	S2524 11C#2 EPA#3	32.5	1.86	2.77	1.63	0.74	1.41	1.03	3.04	1.258286534
746	4/4/03	EPA	S2525 11C#2 EPA#4	29.4	5.47	2.27	1.8	0.59	1.99	0.83	3.89	1.018331868
747	4/4/03	EPA	S2526 11C#2 EPA#5	32.9	-0.85	2.37	0.97	0.83	3.58	0.92	4.56	1.115033832

Average Total Radium (Th-232+Ra-226) Concentration for : 11C#2 $\bar{X} = 3.75$ $\sigma = 0.70$ 3.75 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
748	4/4/03	EPA	S2527 11D EPA#1	35.4	6.98	3.13	0.6	0.79	2.82	1.18	3.12	1.48348001
749	4/4/03	EPA	S2528 11D EPA#2	34.8	0.11	2.08	2.38	0.82	0.65	1.13	3.01	1.385173342
750	4/4/03	EPA	S2529 11D EPA#3	36.7	3	2.91	-0.28	0.78	2.95	1.17	2.95	1.408184807
751	4/4/03	EPA	S2530 11D EPA#4	32.9	2.81	2.22	0.79	0.69	2.48	0.85	3.25	1.042028589
752	4/4/03	EPA	S2531 11D EPA#5	36.3	6.03	2.89	0.4	0.75	2.18	1.11	2.58	1.339526814

Average Total Radium (Th-232+Ra-226) Concentration for : 11D $\bar{X} = 2.98$ $\sigma = 0.25$ 2.93 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
753	4/4/03	EPA	S2532 10C EPA#1	32.2	6.17	2.92	1.74	0.74	0.68	1.03	2.32	1.268286534
754	4/4/03	EPA	S2533 10C EPA#2	34.5	1.71	3.38	1.18	0.89	2.54	1.27	3.67	1.550806242
755	4/4/03	EPA	S2534 10C EPA#3	32.6	-3.34	2	1.81	0.55	1.64	0.78	3.35	0.960208311
756	4/4/03	EPA	S2535 10C EPA#4	31.1	8	3.97	0.88	1.02	1.51	1.48	2.17	1.772822808
757	4/4/03	EPA	S2536 10C EPA#5	30.3	-0.27	3.33	0.33	0.89	1.89	1.29	2.22	1.56722866

Average Total Radium (Th-232+Ra-226) Concentration for : 10C $\bar{X} = 2.75$ $\sigma = 0.71$ 2.75 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
758	4/4/03	EPA	S2537 10D#1 EPA#1	31.6	-1.06	2.18	2.44	0.6	0.38	0.82	2.6	1.018070884
759	4/4/03	EPA	S2538 10D#1 EPA#2	29.8	6.57	2.89	1.92	0.7	2	0.98	3.62	1.204326537
760	4/4/03	EPA	S2539 10D#1 EPA#3	34.5	1.99	3.3	1.58	0.9	2.96	1.26	4.62	1.548418548
761	4/4/03	EPA	S2540 10D#1 EPA#4	33.6	-1.67	3.02	1.24	0.64	3.83	1.21	5.07	1.472090158
762	4/4/03	EPA	S2541 10D#1 EPA#5	34.3	-2.79	2.85	1.38	0.79	1.75	1.15	3.13	1.385206078

Average Total Radium (Th-232+Ra-226) Concentration for : 10D#1 $\bar{X} = 3.89$ $\sigma = 0.94$ 3.89 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
763	4/4/03	EPA	S2542 9C EPA#1	28.6	2.55	2.88	0.8	0.79	1.44	1.14	2.24	1.368976128
764	4/4/03	EPA	S2543 9C EPA#2	27.7	2.13	2.6	0.01	0.87	2.83	1.02	2.84	1.220388797
765	4/4/03	EPA	S2544 9C EPA#3	31.2	6.35	3.98	1.4	1.01	1.07	1.45	2.47	1.787088
766	4/4/03	EPA	S2545 9C EPA#4	29.8	4.59	2.86	0.18	0.76	4.1	1.13	4.28	1.373062271
767	4/4/03	EPA	S2546 9C EPA#5	32.6	0.09	3.5	1.81	0.93	1.58	1.31	3.39	1.606549097

Average Total Radium (Th-232+Ra-226) Concentration for : 9C $\bar{X} = 3.04$ $\sigma = 0.31$ 3.04 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
768	4/4/03	EPA	S2547 10D#3 EPA#1	34.6	1.85	2.04	1.85	0.55	1.47	0.77	3.12	0.945256779
769	4/4/03	EPA	S2548 10D#3 EPA#2	34.8	6.31	2.67	1.91	0.88	0.3	0.94	2.21	1.160172401
770	4/4/03	EPA	S2549 10D#3 EPA#3	34.2	4.35	1.83	0.9	0.48	2.12	0.89	3.02	0.840535544
771	4/4/03	EPA	S2550 10D#3 EPA#4	33.4	-0.07	2.69	1.78	0.89	1.89	0.97	3.47	1.109378091
772	4/4/03	EPA	S2551 10D#3 EPA#5	36.7	4.8	3.24	1.45	0.88	0.82	1.2	2.07	1.476846843

Average Total Radium (Th-232+Ra-226) Concentration for : 10D#3 $\bar{X} = 2.78$ $\sigma = 0.61$ 2.78 pCi/g

STS CONSULTANTS, LTD.
Consulting Engineers and Environmental Scientists
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061
Phone: (847) 279-2500
Fax: (847) 279-2510

Date: April 16, 2003

Total Number of Pages, Including Cover: 10

FAX TRANSMITTAL COVER SHEET
PLEASE DELIVER THE FOLLOWING PAGES

NAME: Fred Micke

COMPANY: USEPA

FAX NUMBER(S): 708-496-8091

FROM: Rich Berggreen

MESSAGE: Attached please find the verification sign-off forms for the areas surveyed and sampled on Friday April 4 at Lakeshore East. All samples passed. These are the ones that were missing. With these sign-off forms, we are complete. Thanks for your help. Please call with any questions.

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (847) 279-2500 IMMEDIATELY
IMPORTANT: This facsimile is intended only for the use of the individual(s) or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this facsimile is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return this facsimile to us at the above address via the United State Postal Service. Thank you.

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STS CONSULTANTS, LTD.
Consulting Engineers and Environmental Scientists
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061
Phone: (847) 279-2500
Fax: (847) 279-2510

Date: April 7, 2003

Total Number of Pages, Including Cover: 10

FAX TRANSMITTAL COVER SHEET
PLEASE DELIVER THE FOLLOWING PAGES

NAME: Fred Micke, Verneta Simon

COMPANY: USEPA

FAX NUMBER(S): 312-3539176

FROM: Rich Berggreen

MESSAGE: Attached please find the verification sign-off forms for the surveys conducted at Lakeshore East on Friday April 4. Please return signed forms to the field office, at 312-946-8323 or to the STS Vernon Hills office at 847-279-2510. Please call with any questions.

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (847) 279-2500 IMMEDIATELY
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FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKEHORE EAST IIC#1
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Richard G. Berggren
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on APR. 7, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date _____
Print Name _____
Print Title _____

For USEPA Region 5

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKE SHORE EAST 11 C #2

Date of Verification Survey: APR. 4, 2003

Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Phil S. Bygren

Date Apr. 7, 2003

Print Name RICHARD G. BERGGREEN

Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on _____ . The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date _____

Print Name _____

Print Title _____

For USEPA Region 5

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKE SHORE EAST 10 D #1

Date of Verification Survey: APR. 4, 2003

Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: W. G. Buzgren

Date Apr. 7, 2003

Print Name RICHARD G. BERGGREEN

Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on _____. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date _____

Print Name _____

Print Title _____

For USEPA Region 5

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: LAKE SHORE EAST 10 D #3

Date of Verification Survey: APR. 4, 2003

Time of Verification Survey 9 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Phil S. Bengtson

Date APR. 7, 2003

Print Name RICHARD G. BERGGREEN

Print Title PROJECT COORDINATOR

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on _____. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date _____

Print Name _____

Print Title

For USEPA Region 5

Nutranl Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for April 4, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
738	4/4/03	EPA	S2517 11C#1 EPA#1	38.4	1.15	2.18	0.33	0.58	1.27	0.84	1.8	1.020784012
739	4/4/03	EPA	S2518 11C#1 EPA#2	35.7	2.08	2.48	0.27	0.68	1.47	0.98	1.74	1.192811804
740	4/4/03	EPA	S2519 11C#1 EPA#3	33.5	-1.68	1.64	0.9	0.45	0.36	0.64	1.26	0.7823682
741	4/4/03	EPA	S2520 11C#1 EPA#4	36.5	8.6	3.15	1.46	0.8	-0.42	1.08	1.04	1.344023809
742	4/4/03	EPA	S2521 11C#1 EPA#5	38.8	8.03	2.54	-0.4	0.64	3.25	0.97	2.85	1.16211015

Average Total Radium (Th-232+Ra-226) Concentration for : 11C#1 1.70 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
743	4/4/03	EPA	S2522 11C#2 EPA#1	31.8	5.93	2.59	1.5	0.87	2.74	0.97	4.24	1.17889779
744	4/4/03	EPA	S2523 11C#2 EPA#2	32.3	10.52	3.22	0.68	0.81	2.34	1.17	3.02	1.423024947
745	4/4/03	EPA	S2524 11C#2 EPA#3	32.5	1.88	2.77	1.63	0.74	1.41	1.03	3.04	1.268266534
746	4/4/03	EPA	S2525 11C#2 EPA#4	29.4	5.47	2.27	1.9	0.59	1.99	0.83	3.88	1.018331969
747	4/4/03	EPA	S2526 11C#2 EPA#5	32.9	-0.65	2.37	0.97	0.63	3.59	0.92	4.58	1.115033632

Average Total Radium (Th-232+Ra-226) Concentration for : 11C#2 3.75 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
748	4/4/03	EPA	S2527 11D EPA#1	35.4	8.98	3.13	0.6	0.79	2.52	1.18	3.12	1.48348001
749	4/4/03	EPA	S2528 11D EPA#2	34.6	0.11	2.98	2.36	0.82	0.88	1.13	3.01	1.398173342
750	4/4/03	EPA	S2529 11D EPA#3	36.7	3	2.91	-0.28	0.78	2.95	1.17	2.87	1.408184997
751	4/4/03	EPA	S2530 11D EPA#4	32.9	2.81	2.22	0.79	0.59	2.46	0.86	3.25	1.042928569
752	4/4/03	EPA	S2531 11D EPA#5	35.3	5.03	2.89	0.4	0.75	2.18	1.11	2.58	1.338828814

Average Total Radium (Th-232+Ra-226) Concentration for : 11D 2.93 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
753	4/4/03	EPA	S2532 10C EPA#1	32.2	6.17	2.92	1.74	0.74	0.58	1.03	2.32	1.268266534
754	4/4/03	EPA	S2533 10C EPA#2	34.5	1.71	3.36	1.13	0.89	2.54	1.27	3.87	1.550808242
755	4/4/03	EPA	S2534 10C EPA#3	32.6	-3.34	2	1.81	0.56	1.54	0.78	3.38	0.980208311
756	4/4/03	EPA	S2535 10C EPA#4	31.1	6	3.97	0.66	1.02	1.51	1.48	2.17	1.772822808
757	4/4/03	EPA	S2536 10C EPA#5	30.3	-0.27	3.33	0.33	0.89	1.89	1.29	2.22	1.55722885

Average Total Radium (Th-232+Ra-226) Concentration for : 10C 2.75 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
758	4/4/03	EPA	S2537 10D#1 EPA#1	31.8	-1.08	2.18	2.44	0.8	0.38	0.82	2.8	1.018070854
759	4/4/03	EPA	S2538 10D#1 EPA#2	29.8	8.57	2.69	1.92	0.7	2	0.99	3.92	1.204325537
760	4/4/03	EPA	S2539 10D#1 EPA#3	34.5	1.99	3.3	1.58	0.9	2.95	1.28	4.62	1.548418548
761	4/4/03	EPA	S2540 10D#1 EPA#4	33.6	-1.67	3.02	1.24	0.84	3.83	1.21	5.07	1.472990158
762	4/4/03	EPA	S2541 10D#1 EPA#5	34.3	-2.79	2.85	1.38	0.79	1.76	1.16	3.13	1.395208078
Average Total Radium (Th-232+Ra-226) Concentration for : 10D#1 3.89 pCi/g												

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
763	4/4/03	EPA	S2542 9C EPA#1	28.8	2.55	2.88	0.8	0.79	1.44	1.14	2.24	1.388978126
764	4/4/03	EPA	S2543 9C EPA#2	27.7	2.13	2.5	0.01	0.87	2.83	1.02	2.84	1.220388797
765	4/4/03	EPA	S2544 9C EPA#3	31.2	5.35	3.98	1.4	1.01	1.07	1.45	2.47	1.787088
766	4/4/03	EPA	S2545 9C EPA#4	29.8	4.59	2.88	0.18	0.78	4.1	1.13	4.26	1.373082271
767	4/4/03	EPA	S2546 9C EPA#5	32.6	0.09	3.5	1.81	0.93	1.58	1.31	3.39	1.606549097
Average Total Radium (Th-232+Ra-226) Concentration for : 9C 3.04 pCi/g												

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
768	4/4/03	EPA	S2547 10D#3 EPA#1	34.8	1.85	2.04	1.65	0.55	1.47	0.77	3.12	0.948255779
769	4/4/03	EPA	S2548 10D#3 EPA#2	34.8	5.31	2.57	1.91	0.68	0.3	0.94	2.21	1.180172401
770	4/4/03	EPA	S2549 10D#3 EPA#3	34.2	4.35	1.83	0.9	0.48	2.12	0.69	3.02	0.840635544
771	4/4/03	EPA	S2550 10D#3 EPA#4	33.4	-0.07	2.89	1.78	0.89	1.89	0.97	3.47	1.190378061
772	4/4/03	EPA	S2551 10D#3 EPA#5	35.7	4.8	3.24	1.45	0.88	0.62	1.2	2.07	1.476348843
Average Total Radium (Th-232+Ra-226) Concentration for : 10D#3 2.78 pCi/g												

I.I
3/24/03

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: Section 9A #1

Date of Verification Survey: 3-27-03

Time of Verification Survey 9:00 Am am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 3-27-03

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



BTS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on April 2, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 4/2/03

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: SECTION 9A #2

Date of Verification Survey: 3-27-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 3-27-03

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on April 2, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 4/2/03

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

3/6/03
I!

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: SECTION 7c

Date of Verification Survey: 3-6-03

Time of Verification Survey 9:00am am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 3-6-03

John Anderson (Print Name)

FIELD TEAM LEAD (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on March 7, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 3/7/03

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

Nutranl Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for March 6, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-235 Activity	U-235 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
837	3/6/03	EPA	S2459 7C EPA#1	30.8	2.74	2.44	0.3	0.64	1.24	0.64	1.54	1.137180518
838	3/6/03	EPA	S2460 7C EPA#2	32.5	1.35	2.18	0.56	0.59	1.05	0.85	1.61	1.034698024
839	3/6/03	EPA	S2461 7C EPA#3	30.9	0.72	2.4	1.25	0.66	2.43	0.95	3.68	1.156782724
840	3/6/03	EPA	S2462 7C EPA#4	35	8.72	2.67	0.05	0.71	0.91	1.05	0.96	1.267517258
841	3/6/03	EPA	S2463 7C EPA#5	29.1	3.31	2.58	0.19	0.68	1.5	0.99	1.68	1.201041215

Average Total Radium (Th-232+Ra-226) Concentration for : 7C 1.90 pCi/g

$$\bar{X} = 1.90 \text{ pCi/g}$$

$$s = 1.04$$

H. H. Holmes Testing Laboratories, Inc.
170 Shepard Avenue, Wheeling, IL 60090
Phone: 847-541-4040 Fax: 847-537-9098

Fax

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USE PA

To: LARRY JENSEN From: John Anderson ^{FAX} - 312-946-8323

Fax: 312-353-9282 Pages: 3

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* EXCLUSION 204A 11A-10P EHEST

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FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: 11^A-10^B EAST

Date of Verification Survey: 2-10-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 2-11-03

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 2/12/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

[Signature] Date 2/12/03

Verneta Simon (Print Name)

On-Scene Coordinator (Print Title)

For U.S. EPA Region V

Exclusion Zone Confirmatory Samples for February 11, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
558	2/12/03	EPA	S2411 11A10B East EPA#1	30.4	3.51	2.45	1.67	0.64	0.48	0.89	2.13	1.096220781
580	2/12/03	EPA	S2412 11A10B East EPA#2	29.2	-5.25	1.73	1.46	0.5	1.76	0.7	3.22	0.860232527
581	2/12/03	EPA	S2413 11A10B East EPA#3	28.1	0.94	2.81	0.55	0.73	1.29	1.07	1.84	1.295299193
582	2/12/03	EPA	S2414 11A10B East EPA#4	28.5	3.89	2.07	0.1	0.53	1.36	0.78	1.46	0.943027041
583	2/12/03	EPA	S2415 11A10B East EPA#5	31.6	-0.05	1.86	1.85	0.54	0.19	0.74	2.04	0.916078599

Average Total Radium (Th-232+Ra-226) Concentration for : 11A10B East 2.14 pCi/g

Note:

- Samples were collected on 2/11/03, but were not analyzed until 2/12/03. GAH
- This is the exclusion zone that was previously above the cleanup threshold of 7.1 pCi/gram and was cleaned up.

H. H. Holmes Testing Laboratories, Inc.

170 Shepard Avenue, Wheeling, IL 60090

Phone: 847-541-4040 Fax: 847-537-9098

Fax

Quality since 1938!

to USEPA

To: LARRY TENSEN From: John Anderson

Fax: 312-353-9281 Pages: 5

Phone: _____ Date: 2-7-03

Re: Lake Shore East FAX# 312-946-8323

☐ Urgent ☐ For Review ☐ Please Comment ☒ Please Reply ☐ Please Recycle

Comments:

PLEASE FAX RELEASE TO:
312-946-8323

2/7/03
JG

- * SECTION 10A
- * SECTION 29C
- * SECTION 11A 10B WEST

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FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: 11th 10^B WEST

Date of Verification Survey: 2-5-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 2-7-03

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 2/7/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Larry Jensen for Fred MacLa Date 2/7/03

Larry Jensen (Print Name)

Health Physicist (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: SECTION 10A

Date of Verification Survey: 2-5-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 2-7-03

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 2/7/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Larry Jensen for Fred Mick Date 2/7/03

Larry Jensen (Print Name)

Health Physicist (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: SECTION 29c

Date of Verification Survey: 2-5-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 2-7-03

John Anderson (Print Name)

Field Team Leader (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 2/7/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Larry Jensen for Fred Mucke Date 2/7/03

Larry Jensen (Print Name)

Health Physicist (Print Title)

For U.S. EPA Region V

Exclusion Zone Confirmatory Samples for February 5, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
520	2/6/03	EPA	S2381 10A EPA#1	29.7	3.21	2.83	0.05	0.68	2.1	1.01	2.15	1.217579566
521	2/6/03	EPA	S2382 10A EPA#2	29.6	0.87	3.19	0.71	0.84	3.02	1.24	3.73	1.497731818
523	2/6/03	EPA	S2383 10A EPA#3	28.9	-0.97	2.05	0.18	0.55	3.69	0.83	3.87	0.995690715
524	2/6/03	EPA	S2384 10A EPA#4	32.5	-4.75	4.75	1.14	1.28	4.92	1.88	6.06	2.274379036
525	2/6/03	EPA	S2385 10A EPA#5	29.8	-7.07	5.08	1.78	1.37	2.91	1.96	4.69	2.391338537

Average Total Radium (Th-232+Ra-226) Concentration for : 10A 4.10 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
528	2/7/03	EPA	S2386 29C EPA #1	27.1	0.58	2.8	3.35	0.75	-0.1	0	3.25	1.25
529	2/7/03	EPA	S2387 29C EPA #2	27.5	4.39	2.38	1.07	0.61	3.22	0.89	4.29	1.078981001
530	2/7/03	EPA	S2388 29C EPA #3	24.8	4.9	1.55	-0.24	0.41	4.28	0.61	4.04	0.734982993
531	2/7/03	EPA	S2389 29C EPA #4	25.2	3.65	2.24	1.04	0.59	2.27	0.84	3.31	1.028498904
532	2/7/03	EPA	S2390 29C EPA #5	26.1	5.12	2.47	1.21	0.64	1.81	0.93	3.02	1.128937554

Average Total Radium (Th-232+Ra-226) Concentration for : 29C 3.58 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
533	2/7/03	EPA	S2391 11A10B East EPA#1	42.5	29.08	23.97	7.24	6.04	86.75	9.31	93.99	11.09764389
534	2/7/03	EPA	S2392 11A10B East EPA#2	42	3.85	2.24	0.55	0.59	1.78	0.88	2.31	1.042928569
535	2/7/03	EPA	S2393 11A10B East EPA#3	42.8	4.01	1.77	1.14	0.46	2.39	0.68	3.53	0.804487414
536	2/7/03	EPA	S2394 11A10B East EPA#4	43.6	2.3	3.06	0.18	0.83	3.63	1.22	3.81	1.475567687
537	2/7/03	EPA	S2395 11A10B East EPA#5	41.8	2.48	2.44	1.26	0.65	2.61	0.93	3.67	1.134636508

*** FAIL *** Above Cleanup Threshold Level of 7.1 pCi/gram

Average Total Radium (Th-232+Ra-226) Concentration for : 11A10B East 21.50 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
538	2/7/03	EPA	S2396 11A10B West EPA#1	37.7	0.73	2.81	1.45	0.75	1.13	1.07	2.58	1.30667517
539	2/7/03	EPA	S2397 11A10B West EPA#2	40.8	5.91	2.33	-0.41	0.6	1.58	0.87	1.17	1.056834887
540	2/7/03	EPA	S2398 11A10B West EPA#3	39.9	2.49	2.88	1.63	0.75	0.18	1.05	1.79	1.29034879
541	2/7/03	EPA	S2399 11A10B West EPA#4	39.8	6.54	1.92	0.69	0.49	1.13	0.7	1.82	0.854458893
542	2/7/03	EPA	S2400 11A10B West EPA#5	37.2	2.52	2.13	0.37	0.56	2.45	0.82	2.82	0.992975327

Average Total Radium (Th-232+Ra-226) Concentration for : 11A10B West 2.04 pCi/g

Note:

- Samples were collected on 2/5/03, but were not analyzed until 2/6/03 and 2/7/03. GAH
- Grid 11A10B East is above the cleanup threshold. We will resurvey area and excavate as needed. GAH

OK

3.35

4.29

4.28

3.31

3.02

Avg 3.65

Fail

2.58

1.58

1.79

1.82

2.82

Avg 2.12

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: E to F.5, 13 to 19 and I to N, 13 to 19

Date of Verification Survey: 1-27-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 1-29-03

John W. Anderson (Print Name)

FIELD TRIMMER LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 1/29/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 1/29/03

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: S-9 EAST and WEST

Date of Verification Survey: 1-27-03

Time of Verification Survey 9:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 1-29-03

Todd Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 1/29/03. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 1/29/03

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

Nutranl Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for January 27, 2003

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
469	1/28/03	EPA	S2344 E-F.5/13-19 EPA#1	30.4	6.2	2.35	-0.31	0.58	2.54	0.9	2.23	1.078150547
470	1/28/03	EPA	S2345 E-F.5/13-19 EPA#2	29.8	6.2	2.17	0.65	0.59	3.34	0.86	4.29	1.042928569
471	1/28/03	EPA	S2346 E-F.5/13-19 EPA#3	30.3	3.27	1.93	0.45	0.5	1.97	0.74	2.42	0.393084542
472	1/28/03	EPA	S2347 E-F.5/13-19 EPA#4	29.8	-4.49	2.35	1.34	0.65	3.13	0.83	4.47	1.134636506
473	1/28/03	EPA	S2348 E-F.5/13-19 EPA#5	30.8	-0.91	2.99	0.97	0.78	3.48	1.16	4.45	1.3978555

Average Total Radium (Th-232+Ra-226) Concentration for : E-F.5/13-19 $\bar{x} = 3.63$ $s = 1.06$ 3.57 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
476	1/29/03	EPA	S2349 I-N/13-19 EPA#1	25.9	2.99	2.08	2.27	0.55	0.99	0.77	3.26	0.946255779
477	1/29/03	EPA	S2350 I-N/13-19 EPA#2	31.1	2.33	2.35	2.14	0.62	1.83	0.88	3.97	1.078475731
478	1/29/03	EPA	S2351 I-N/13-19 EPA#3	31.3	5.6	2.3	1.33	0.6	2.97	0.86	4.3	1.048618138
479	1/29/03	EPA	S2352 I-N/13-19 EPA#4	27.2	7.73	2.63	1.07	0.67	1.51	0.94	2.58	1.154339638
480	1/29/03	EPA	S2353 I-N/13-19 EPA#5	33.1	4.23	2.43	1.58	0.64	3.48	0.9	5.06	1.104355015

Average Total Radium (Th-232+Ra-226) Concentration for : I-N/13-19 $\bar{x} = 3.83$ $s = 0.95$ 3.83 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
481	1/29/03	EPA	S2354 S-9 West EPA#1	27.1	4.49	3.1	1.18	0.81	2.03	1.18	3.22	1.414814476
482	1/29/03	EPA	S2355 S-9 West EPA#2	26.2	1.72	2.34	1.95	0.63	1.14	0.86	3.09	1.06606764
483	1/29/03	EPA	S2356 S-9 West EPA#3	26.9	4.05	2.02	0.73	0.54	3.18	0.77	3.91	0.940478602
484	1/29/03	EPA	S2357 S-9 West EPA#4	29	1.21	2.34	0.97	0.82	2.22	0.89	3.19	1.084866847
485	1/29/03	EPA	S2358 S-9 West EPA#5	28	4.21	2.93	1.25	0.77	1.65	1.09	2.9	1.33454112

Average Total Radium (Th-232+Ra-226) Concentration for : S-9 West $\bar{x} = 3.26$ $s = 0.38$ 3.26 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
486	1/29/03	EPA	S2359 S-9 East EPA#1	23.5	2.69	1.65	1.98	0.44	0.85	0.61	2.81	0.752130308
487	1/29/03	EPA	S2360 S-9 East EPA#2	22	4.19	2.89	0.09	0.78	2.04	1.11	2.13	1.356650287
488	1/29/03	EPA	S2361 S-9 East EPA#3	23.5	7.53	2.28	0.09	0.58	3.35	0.88	3.44	1.05394497
489	1/29/03	EPA	S2362 S-9 East EPA#4	21.4	-1.35	2.17	1.7	0.61	1.93	0.86	3.63	1.054371851
490	1/29/03	EPA	S2363 S-9 East EPA#5	22.5	1.23	2.21	0.54	0.6	3.5	0.88	4.04	1.065082156

Average Total Radium (Th-232+Ra-226) Concentration for : S-9 East $\bar{x} = 3.21$ $s = 0.75$ 3.21 pCi/g

Note:

- Samples were collected on 1/27/03 but were not analyzed until 1/28/03 and 1/29/03. GAH
- First 2 exclusion zones are from phase I. Second 2 exclusion zones are from caisson test pits. GAH

12/23/02

TO: Steve Konder

FROM: Larry Jensen

STS Consultants

US EPA
(312) 886-5026

T. J.
12/23/02

STS Consultants, Ltd.

750 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: (847) 279-2500
Fax: (847) 279-2510



FACSIMILE TRANSMISSION

Date: 12/23/02

Pages being transmitted, Incl. Cover: 4

To:	Company Name:	Fax No.:
Larry Jensen	USEPA	312-353-9281

From: Steve Kornder

Fax 312-946-8323
Phone: 312-946-8326

Re: Lakeshore East - Grading Phase Verification forms

☐ For Review ☐ Please Comment/Reply ☐ As Requested ☒ For Signature

Message:

Larry,
Please find attached the survey verification signoff forms for the surveys completed by USEPA at grading phase locations 26CD, 35B-36A, and 28A on December 23, 2002.

Steve Kornder

IMPORTANT: This facsimile is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this facsimile is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return this facsimile to us at the above address via the United States Postal Service. Thank you.

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (847) 279-2500 IMMEDIATELY

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: Grading Phase Final Location 26 CP

Date of Verification Survey: 12/23/02

Time of Verification Survey 9:00 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA

Signed:

[Signature] Date 12/23/02

Steve Koender (Print Name)

Senior Geoscientist (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/23/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Larry Jensen for Ford McKee Date 12/23/02

Larry Jensen (Print Name)

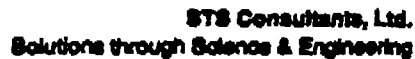
Senior Health Physicist (Print Title)

For U.S. EPA Region V

Area Identification: Grading Phase - East Location 28A
Date of Verification Survey: 12/23/02
Time of Verification Survey 9:00 ☒ am/pm

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Steve Koender Date 12/23/02
Steve Koender (Print Name)
Senior Biochemist (Print Title)



Authorization is hereby granted to commence backfill and restoration work at this excavation

Larry Jensen for Fred Mickle Date 12/23/02
Larry Jensen (Print Name)
Senior Health Physicist (Print Title)

[illegible]

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: Grading Phase Final Location 35B36A

Date of Verification Survey: 12/23/02

Time of Verification Survey 9:00 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Steve Koender Date 12/23/02

Steve Koender (Print Name)

Senior Geochemist (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/23/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Larry Jenses for Fred Micker Date 12/23/02

Larry Jenses (Print Name)

Senior Health Physicist (Print Title)

For U.S. EPA Region V

Nutranl Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for December 23, 2002 (Lift Phase)

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
358	12/23/02	EPA	S2271 26CD EPA #1	27.2	-0.77	2.44	1.24	0.67	1.21	0.94	2.45	1.154339636
359	12/23/02	EPA	S2272 26CD EPA #2	25.8	8.14	2.14	0.11	0.55	2.27	0.8	2.38	0.970824382
360	12/23/02	EPA	S2273 26CD EPA #3	23.9	3.27	2	1.04	0.53	1.88	0.77	2.92	0.9347727
361	12/23/02	EPA	S2274 26CD EPA #4	25.2	7.1	2.2	-0.03	0.56	2.6	0.84	2.57	1.009554357
362	12/23/02	EPA	S2275 26CD EPA #5	23.4	1.43	2.75	0.1	0.73	1.84	1.09	1.94	1.311868898

2.60

Average Total Radium (Th-232+Ra-226) Concentration for : 26CD 2.45^{2.46} pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
363	12/23/02	EPA	S2276 28A EPA #1	29	0.78	1.84	-0.19	0.5	1.72	0.75	1.53	0.901387818
364	12/23/02	EPA	S2277 28A EPA #2	27.9	5.15	2.18	0.23	0.56	0.58	0.81	0.81	0.984733468
365	12/23/02	EPA	S2278 28A EPA #3	28.5	5.19	2.48	1.48	0.63	-1.43	0.86	0.06	1.06606754
366	12/23/02	EPA	S2279 28A EPA #4	28.2	3.89	2.26	-0.04	0.6	0.93	0.89	0.89	1.073359213
367	12/23/02	EPA	S2280 28A EPA #5	27	1.99	1.98	0	0.52	0.84	0.76	0.84	0.920889155

1.72

1.49

0.93

Average Total Radium (Th-232+Ra-226) Concentration for : 28A 0.82^{1.16} pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
368	12/23/02	EPA	S2281 35B36A EPA #1	19.2	0.78	3.19	2.23	0.85	1.9	1.19	4.18	0.468230227
369	12/23/02	EPA	S2282 35B36A EPA #2	19.8	1.01	1.9	2.23	0.51	1.31	0.7	3.57	0.868083137
370	12/23/02	EPA	S2283 35B36A EPA #3	17.6	6.59	1.56	0.84	0.4	2.19	0.58	3.13	0.704556596
371	12/23/02	EPA	S2284 35B36A EPA #4	18.5	9.32	2.35	-0.3	0.5	3.7	0.87	3.4	1.058834897
372	12/23/02	EPA	S2285 35B36A EPA #5	18.9	7.47	2.44	1.25	0.63	2.77	0.92	4.02	1.115033632

3.70

Average Total Radium (Th-232+Ra-226) Concentration for : 35B36A 3.66^{3.72} pCi/g

12/6/02
T-1

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: CC TO FF, 1 To 4

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 12-10-02

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/6/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V,

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: EE TO FF, 12 TO 14

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 12-10-02

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: 55 TO 111, 32 TO 34

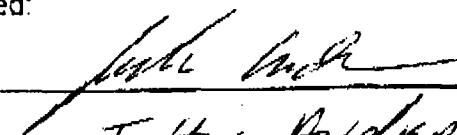
Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

 Date 12-10-02
John Anderson (Print Name)
FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02
FREDRICK A. MICKE (Print Name)
ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: XX-18

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 12-10-02

JOHN ANDERSON (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA : II TO DD, 89611

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

 Date 12-10-02

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: TITCOO, 11 to 13.5

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson Date 12-10-02
John Anderson (Print Name)
FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions Through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02
FREDRICK A. MICKE (Print Name)
ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTHSLIP AREA: II TO 00, 13.5 TO 16

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 ^{mm} am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

John Anderson

Date 12-10-02

John Anderson

(Print Name)

FIELD TEAM LEADER

(Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke

Date 12/10/02

FREDRICK A. MICKE

(Print Name)

ON-SCENE COORDINATOR

(Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA: NN TO PP, 42 TO 45

Date of Verification Survey: 12-6-02

Time of Verification Survey 10:00 AM am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

[Signature] Date 12-10-02

John Anderson (Print Name)

FIELD TEAM LEADER (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/10/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

H. H. Holmes Testing Laboratories, Inc.
170 Shepard Avenue, Wheeling, IL 60090
Phone: 847-541-4040 Fax: 847-537-8098

Fax

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USEPA

From: FRED MILKIE From: John Anderson
Fax: 312-353-9176 Pages: 11
Phone: _____ Date: 12-10-02
Re: Lake Shore East CCI: _____

☐ Urgent ☐ For Review ☐ Please Comment ☒ Please Reply ☐ Please Recycle

Comments:

PLEASE FAX REPLY TO: 1-312-946-8323
NORTH SLIP AREAS:

- ✓ * CC TOFF, 1 to 4
- ✓ * EE TOFF, 12 to 14
- ✓ * SS TO CH, 32 to 34
- ✓ * XX-18
- ✓ * JT TO OO, 8 to 11
- ✓ * JT TO OO, 11 to 13.5
- ✓ * JT TO OO, 13.5 to 16
- ✓ * NN TO PP, 42 to 45

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Nutrani Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for December 6, 2002

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
276	12/6/02	EPA	S2205 CC-FF/1-4 EPA#1	24.5	3.72	2.08	0.09	0.55	0.87	0.8	0.96	0.970824392
277	12/6/02	EPA	S2206 CC-FF/1-4 EPA#2	23.6	2.91	2.08	0.67	0.66	-0.36	0.78	0.67	0.960228311
278	12/6/02	EPA	S2207 CC-FF/1-4 EPA#3	23.3	2.46	1.77	0.33	0.48	1.42	0.7	1.75	0.848733807
279	12/6/02	EPA	S2208 CC-FF/1-4 EPA#4	25.4	5.42	2.06	-0.52	0.55	1.91	0.81	1.91	0.979081202
280	12/6/02	EPA	S2209 CC-FF/1-4 EPA#5	22.3	7.08	1.53	0	0.38	-0.18	0.55	0	0.868505797

Average Total Radium (Th-232+Ra-226) Concentration for :

CC-FF/1-4

$$\chi = 1.06 \quad \sigma = 0.79$$

0.85 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
281	12/6/02	EPA	S2210 EE-FF/12-14 EPA#1	27.2	3.2	2.68	1.27	0.71	-1.47	0.87	1.27	1.20281521
282	12/6/02	EPA	S2211 EE-FF/12-14 EPA#2	27.4	3.38	1.87	0.14	0.51	1.11	0.73	1.25	1.890506474
283	12/6/02	EPA	S2212 EE-FF/12-14 EPA#3	28.3	5.13	1.75	0.1	0.46	0.88	0.68	0.98	0.82097503
284	12/6/02	EPA	S2213 EE-FF/12-14 EPA#4	27.9	2.09	2.49	0.7	0.67	1.04	0.96	1.74	1.170883681
285	12/6/02	EPA	S2214 EE-FF/12-14 EPA#5	27.2	6.16	2.43	-0.67	0.62	1.54	0.95	1.54	1.134416149

Average Total Radium (Th-232+Ra-226) Concentration for :

EE-FF/12-14

$$\chi = 1.36 \quad \sigma = 0.29$$

0.93 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
286	12/6/02	EPA	S2215 SS-UU/32-34 EPA#1	20.9	2.39	2.11	1.1	0.58	-0.18	0.79	1.1	0.988349111
287	12/6/02	EPA	S2216 SS-UU/32-34 EPA#2	21.7	6.09	1.88	-0.41	0.48	1.52	0.72	1.52	0.865332306
288	12/6/02	EPA	S2217 SS-UU/32-34 EPA#3	20.4	5.49	2.08	-0.44	0.55	2.03	0.81	2.03	0.879081202
289	12/6/02	EPA	S2218 SS-UU/32-34 EPA#4	20.5	0.63	1.97	-0.04	0.54	1.58	0.6	1.58	0.985194251
290	12/6/02	EPA	S2219 SS-UU/32-34 EPA#5	20.8	4.12	2.22	-0.04	0.59	1.7	0.87	1.70	1.051189802

Average Total Radium (Th-232+Ra-226) Concentration for :

SS-UU/32-34 =

$$\chi = 1.59 \quad \sigma = 0.34$$

1.36 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
291	12/6/02	EPA	S2220 XX-18 EPA#1	18.2	3.4	2.82	-0.13	0.78	1.28	1.11	1.26	1.345250908
292	12/6/02	EPA	S2221 XX-18 EPA#2	19.2	-0.63	1.83	0.76	0.5	0.79	0.74	1.55	0.893084542
293	12/6/02	EPA	S2222 XX-18 EPA#3	18	1.77	2.1	0.18	0.58	1.81	0.83	1.89	1.012570985
294	12/6/02	EPA	S2223 XX-18 EPA#4	18.5	3.15	1.55	0.79	0.41	0.47	0.58	1.26	0.710281834
295	12/6/02	EPA	S2224 XX-18 EPA#5	19.8	2.12	2.21	1.08	0.59	0.2	0.83	1.29	1.018331965

Average Total Radium (Th-232+Ra-226) Concentration for :

XX-18 =

$$\chi = 1.45 \quad \sigma = 0.27$$

1.45 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
298	12/6/02	EPA	S2225 JJ-00/8-11 EPA#1	19.3	1.29	2.38	0.39	0.66	1.11	0.93	1.5	1.134638506
297	12/6/02	EPA	S2226 JJ-00/8-11 EPA#2	19.8	6.78	1.86	-1.2	0.48	3.57	0.73	3.57	0.873670418
298	12/6/02	EPA	S2227 JJ-00/8-11 EPA#3	19.7	1.87	1.76	0.55	0.47	1	0.68	1.55	0.826819822
299	12/6/02	EPA	S2228 JJ-00/8-11 EPA#4	19.3	1.96	2.27	0.85	0.82	0.98	0.87	1.81	1.088318433
300	12/6/02	EPA	S2229 JJ-00/8-11 EPA#5	18.2	3.57	1.69	0.82	0.45	0.95	0.85	1.77	0.790569415

Average Total Radium (Th-232+Ra-226) Concentration for : JJ-00/8-11 = $\chi = 2.04$ $\sigma = 0.87$ 1.80 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
303	12/9/02	EPA	S2230 JJ-00/11-13.5 EPA#1	18.9	3.27	2.71	0.14	0.72	1.98	1.05	2.12	1.27314571
304	12/9/02	EPA	S2231 JJ-00/11-13.5 EPA#2	18.3	-1.86	2.09	0.19	0.58	1.95	0.86	2.14	1.037304198
305	12/9/02	EPA	S2232 JJ-00/11-13.5 EPA#3	17.1	1.2	2.04	0.04	0.55	1.61	0.81	1.65	0.978081202
306	12/9/02	EPA	S2233 JJ-00/11-13.5 EPA#4	17.8	5.57	2.83	0.29	0.75	1.57	1.08	1.88	1.31487642
307	12/9/02	EPA	S2234 JJ-00/11-13.5 EPA#5	17.8	3.31	1.79	-0.83	0.47	2.21	0.71	2.21	0.851468318

Average Total Radium (Th-232+Ra-226) Concentration for : JJ-00/11-13.5 = $\chi = 2.00$ $\sigma = 0.23$ 1.87 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
308	12/9/02	EPA	S2235 JJ-00/13.5-18 EPA#1	18.1	4.55	2.74	0.18	0.73	1.68	1.04	1.88	1.270628765
309	12/9/02	EPA	S2236 JJ-00/13.5-18 EPA#2	17.9	5.34	2.83	1.15	0.75	0.28	1.04	1.41	1.282224825
310	12/9/02	EPA	S2237 JJ-00/13.5-18 EPA#3	17.8	7.41	1.74	-0.21	0.44	2.48	0.68	2.48	0.793221281
311	12/9/02	EPA	S2238 JJ-00/13.5-18 EPA#4	18.2	0.91	2.71	0.88	0.73	1.39	1.07	2.27	1.296299193
312	12/9/02	EPA	S2239 JJ-00/13.5-18 EPA#5	17.2	4.38	2.06	0.9	0.54	0.31	0.77	1.21	0.940478602

Average Total Radium (Th-232+Ra-226) Concentration for : JJ-00/13.5-18 = $\chi = 1.85$ $\sigma = 0.54$ 1.80 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
313	12/9/02	EPA	S2240 NN-PP/42-45 EPA#1	19.2	1.54	2.03	1.78	0.55	0.3	0.78	2.08	0.938136451
314	12/9/02	EPA	S2241 NN-PP/42-45 EPA#2	18	3.78	2.32	1.19	0.62	0.15	0.87	1.34	1.068316433
315	12/9/02	EPA	S2242 NN-PP/42-45 EPA#3	18.2	2.34	1.96	0.81	0.53	1.87	0.78	2.68	0.926552751
316	12/9/02	EPA	S2243 NN-PP/42-45 EPA#4	18.2	3.11	2.6	1.27	0.89	0.51	0.99	1.78	1.208731122
317	12/9/02	EPA	S2244 NN-PP/42-45 EPA#5	17.9	2.89	2.37	0.88	0.63	1.88	0.92	2.54	1.115033632

Average Total Radium (Th-232+Ra-226) Concentration for : NN-PP/42-45 = $\chi = 2.08$ $\sigma = 0.55$ 2.08 pCi/g

Final 3 batches were sampled on 12/6/02 but were not analyzed until 12/9/02. GAH

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

* Area Identification: NORTH SLIP AREA H.H.5-KK 132-38

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/3/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

** Area Identification: NORTH SLIP AREA LL-5-MM/32-38

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records Officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/3/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIT AREA 00-TT / 17-19.5

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

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Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: North Slip Area 00-55/19.5-22

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records Officer (Print Title)



STB Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/3/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: North Slip Area KK-LL.5/32.38

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records Officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

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Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: North Slip Area GG-HH.5/32-38

Date of Verification Survey: 11/29/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 12/03/02

Charles Brown (Print Name)

Records Officer (Print Title)



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Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 12/3/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

Exclusion Zone Confirmatory Samples for November 29, 2002

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
218	12/2/02	EPA	S2155 HH.5-KK/32-38 EPA#1	33.1	4.73	2.15	0.93	0.57	2.96	0.82	3.89	0.998649088
219	12/2/02	EPA	S2156 HH.5-KK/32-38 EPA#2	33.4	9.37	2.61	0.71	0.87	2.48	0.96	3.19	1.170883561
220	12/2/02	EPA	S2157 HH.5-KK/32-38 EPA#3	33.5	10.82	2.67	0.15	0.68	3.19	0.99	3.34	1.201041219
221	12/2/02	EPA	S2158 HH.5-KK/32-38 EPA#4	31.7	5.45	2.38	0.83	0.64	2.39	0.91	3.22	1.112519663
222	12/2/02	EPA	S2159 HH.5-KK/32-38 EPA#5	31.9	3.35	2.82	1.7	0.77	1.22	1.08	2.92	1.326386067
Average Total Radium (Th-232+Ra-226) Concentration for : HH.5-KK/32-38										$\bar{x} = 3.31$ 3.31	$s = 0.36$ pCi/g	

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
223	12/2/02	EPA	S2160 LL.5-MM/32-38 EPA#1	37.1	7.22	2.46	1.34	0.63	1.1	0.89	2.44	1.090412766
224	12/2/02	EPA	S2161 LL.5-MM/32-38 EPA#2	34.6	4.41	2.26	0.61	0.59	1.71	0.85	2.32	1.034698024
225	12/2/02	EPA	S2162 LL.5-MM/32-38 EPA#3	36.3	1.57	2.25	0.65	0.61	2.23	0.86	2.88	1.054371851
226	12/2/02	EPA	S2163 LL.5-MM/32-38 EPA#4	36	8.44	3.4	0.97	0.89	1.28	1.26	2.25	1.542627626
227	12/2/02	EPA	S2164 LL.5-MM/32-38 EPA#5	37.1	5.74	2.16	0.23	0.56	2.44	0.82	2.67	0.992975327
Average Total Radium (Th-232+Ra-226) Concentration for : LL.5-MM/32-38										$\bar{x} = 2.51$ 2.51	$s = 0.26$ pCi/g	

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
228	12/2/02	EPA	S2165 OO-TT/17-19.5 EPA#1	26.1	5.05	2.07	1.49	0.53	1.46	0.76	2.95	0.926552751
229	12/2/02	EPA	S2166 OO-TT/17-19.5 EPA#2	26.3	0.15	2.21	1.31	0.6	0.65	0.85	1.96	1.040432602
230	12/2/02	EPA	S2167 OO-TT/17-19.5 EPA#3	25.4	-1.1	2.44	0.55	0.67	1.61	0.97	2.16	1.17889779
231	12/2/02	EPA	S2168 OO-TT/17-19.5 EPA#4	26.9	7.07	2.54	0.11	0.66	2.78	0.95	2.89	1.156762724
232	12/2/02	EPA	S2169 OO-TT/17-19.5 EPA#5	25.3	2.36	1.94	1.01	0.53	3.03	0.76	4.04	0.926552751
Average Total Radium (Th-232+Ra-226) Concentration for : OO-TT/17-19.5 =										$\bar{x} = 2.80$ 2.80	$s = 0.82$ pCi/g	

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
233	12/2/02	EPA	S2170 OO-TT/19.5-22 EPA#1	25.5	5.53	2.38	0.27	0.62	2.27	0.89	2.54	1.084665847
234	12/2/02	EPA	S2171 OO-TT/19.5-22 EPA#2	28.2	6.81	2.94	0.66	0.76	1.02	1.07	1.88	1.312440475
235	12/2/02	EPA	S2172 OO-TT/19.5-22 EPA#3	28.8	4.96	1.93	0.82	0.51	1.31	0.73	2.13	0.890505474
236	12/2/02	EPA	S2173 OO-TT/19.5-22 EPA#4	27.3	3.71	1.87	1.09	0.49	0.58	0.68	1.67	0.838152731
237	12/2/02	EPA	S2174 OO-TT/19.5-22 EPA#5	28.7	-4.38	2.76	2.04	0.79	1.38	1.13	3.42	1.378767566
Average Total Radium (Th-232+Ra-226) Concentration for : OO-TT/19.5-22										$\bar{x} = 2.33$ 2.33	$s = 0.69$ pCi/g	

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
238	12/2/02	EPA	S2175 KK-LL 5/32-38 EPA#1	30.4	5.2	2.99	1.91	0.79	0.35	1.08	2.26	1.338095662
239	12/2/02	EPA	S2176 KK-LL 5/32-38 EPA#2	31.5	0.76	2.59	1.88	0.89	1.23	0.97	2.91	1.190378091
240	12/2/02	EPA	S2177 KK-LL 5/32-38 EPA#3	31.6	0.06	1.9	1.32	0.51	1.02	0.72	2.34	0.88232647
241	12/2/02	EPA	S2178 KK-LL 5/32-38 EPA#4	31.2	-0.32	2.94	2.44	0.79	0.15	1.11	2.59	1.36242431
242	12/2/02	EPA	S2179 KK-LL 5/32-38 EPA#5	27.8	1.51	2.08	1.41	0.56	1.5	0.79	2.91	0.968349111
Average Total Radium (Th-232+Ra-226) Concentration for :					KK-LL 5/32-38 =			$\bar{x} = 2.60$ $s = 0.31$ 2.60 pCi/g				

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
243	12/2/02	EPA	S2180 GG-HH 5/32-38 EPA#1	36.2	4.51	2.04	1.03	0.54	1.48	0.75	2.51	1.924175306
244	12/2/02	EPA	S2181 GG-HH 5/32-38 EPA#2	37.7	10.27	2.71	0.94	0.69	2.34	0.89	3.28	1.208731122
245	12/2/02	EPA	S2182 GG-HH 5/32-38 EPA#3	35.8	2.02	2.07	1.83	0.56	1.52	0.78	3.35	1.980208311
246	12/2/02	EPA	S2183 GG-HH 5/32-38 EPA#4	33.7	6.18	2.77	0.39	0.71	1.45	1.04	1.84	1.259245806
247	12/2/02	EPA	S2184 GG-HH 5/32-38 EPA#5	35.8	5.96	2.4	1.73	0.62	0.53	0.85	2.26	1.052093152
Average Total Radium (Th-232+Ra-226) Concentration for :					GG-HH 5/32-38			$\bar{x} = 2.65$ $s = 0.65$ 2.65 pCi/g				

Note: All samples were obtained on 11/29/02 but were not analyzed until 12/2/02
Disregard sample dates listed above.

STS Consultants, Ltd.

760 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: (847) 279-2500
Fax: (847) 279-2510



FACSIMILE TRANSMISSION

Date: 12/03/02

Pages being transmitted, Incl. Cover: 9

To:	Company Name:	Fax No.:
Verneta Simon	U.S.E.P.A. Region 5	(312) 353-9176
c: Fred Micke	"	"

From: Charles Brown

FAX (312) 946-8323

Phone: (647) 344-6384

Re: EPA Confirmation Samples

☒ For Review

☒ Please Comment/Reply

☐ As Requested

☒ For Signature

Message: Lake Shore East 1-32193-XC

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11/19/02

FORM 223-1

NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: SOUTH SLIP AREA C-E, 9-10.5

Date of Verification Survey: 11/15/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown / R-ces Date 11/18/02

Charles E. Brown R-ces (Print Name)

Records officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on Nov 19, 2002. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 11/19/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1

NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: ~~XXX~~ SOUTH SLIP AREA E-K, 1-13Date of Verification Survey: 11/15/02Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E Brown Date 11/18/02Charles E. Brown (Print Name)RECORDS OFFICER (Print Title)

STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on Nov 19, 2002. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 11/19/02FREDRICK A. MICKE (Print Name)ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1

NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: ***
NORTH SLIP AREA KK-00, 41-44Date of Verification Survey: 11/15/02Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 11/18/02Charles E. Brown (Print Name)Records Officer (Print Title)

STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on Nov 19, 2002. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 11/19/02FREDRICK A. MICKE (Print Name)ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1

NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: KK - MM 5, 54 - 56.5 NORTH SLIP AREADate of Verification Survey: 11/15/02Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 11/18/02Charles E. Brown (Print Name)RECORDS OFFICER (Print Title)

STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on Nov 19, 2002. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 11/19/02FREDRICK A. MICKE (Print Name)ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: NORTH SLIP AREA RR-SS, 43-45

Date of Verification Survey: 11/15/02

Time of Verification Survey 1300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 11/18/02

Charles E. Brown (Print Name)

Records Officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on Nov 19, 2002. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Fredrick A. Micke Date 11/19/02

FREDRICK A. MICKE (Print Name)

ON-SCENE COORDINATOR (Print Title)

For U.S. EPA Region V

Exclusion Zone Confirmatory Samples for November 15, 2002

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
138	11/15/02	EPA	S2091 E-I/3-5 EPA#1	29.3	1.86	2.21	1.48	0.59	0.28	0.83	1.74	1.018331989
139	11/15/02	EPA	S2092 E-I/3-5 EPA#2	28.5	2.54	1.87	1.24	0.45	1.88	0.64	3.12	0.7823682
140	11/15/02	EPA	S2093 E-I/3-5 EPA#3	28.9	8.18	2.2	0.18	0.58	2.84	0.82	2.82	0.982975327
141	11/15/02	EPA	S2094 E-I/3-5 EPA#4	32	4.58	2.48	1.04	0.65	2.17	0.94	3.21	1.142847321
142	11/15/02	EPA	S2095 E-I/3-5 EPA#5	30	8.43	2.62	0.59	0.69	2.54	0.99	3.13	1.206731122

Average Total Radium (Th-232+Ra-226) Concentration for : $\bar{x} = 2.80$ $s = 0.61$ E-I/3-5 = 2.80 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
143	11/15/02	EPA	S2098 E-I/5-7 EPA#1	31.8	3.69	1.82	1.31	0.48	2.08	0.88	3.39	0.832346082
144	11/15/02	EPA	S2097 E-I/5-7 EPA#2	33.4	5.78	1.97	1.93	0.52	1.52	0.72	3.45	0.888144132
145	11/15/02	EPA	S2098 E-I/5-7 EPA#3	32.1	5.59	2.23	0.1	0.58	3.42	0.88	3.52	1.037304198
146	11/15/02	EPA	S2099 E-I/5-7 EPA#4	29.2	4.99	1.78	1.14	0.48	0.55	0.65	1.69	0.798303962
147	11/15/02	EPA	S2100 E-I/5-7 EPA#5	33.1	4.24	2.92	0.8	0.78	2.54	1.09	3.34	1.340335779

Average Total Radium (Th-232+Ra-226) Concentration for : $\bar{x} = 3.08$ $s = 0.78$ E-I/5-7 = 3.08 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
150	11/18/02	EPA	S2101 E-J/7-9 EPA#1	27.7	3.7	1.81	1.13	0.51	1.8	0.72	2.73	0.88232647
151	11/18/02	EPA	S2102 E-J/7-9 EPA#2	26.5	2.31	2.15	1.67	0.58	1.72	0.81	3.38	0.896242942
152	11/18/02	EPA	S2103 E-J/7-9 EPA#3	25.7	3.49	2.05	0.19	0.55	3.24	0.8	3.43	0.970824392
153	11/18/02	EPA	S2104 E-J/7-9 EPA#4	27.1	4.88	2.57	1.81	0.68	0.25	0.92	2.08	1.132254368
154	11/18/02	EPA	S2105 E-J/7-9 EPA#5	28.2	5.23	1.8	1.12	0.6	1.67	0.71	2.79	0.888389314

Average Total Radium (Th-232+Ra-226) Concentration for : $\bar{x} = 2.88$ $s = 0.56$ E-J/7-9 = 2.88 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
155	11/18/02	EPA	S2108 I-K/9-13 EPA#1	28.8	4.72	2.52	0.94	0.87	2.75	0.97	3.69	1.17889779
156	11/18/02	EPA	S2107 I-K/9-13 EPA#2	27.6	1.57	2.32	1.02	0.83	2.83	0.9	3.85	1.098560005
157	11/18/02	EPA	S2108 I-K/9-13 EPA#3	29.8	5.85	2.88	2.41	0.7	1.55	0.97	3.98	1.198202324
158	11/18/02	EPA	S2109 I-K/9-13 EPA#4	27.9	10.93	3.21	1.39	0.81	1.45	1.13	2.84	1.390323703
159	11/18/02	EPA	S2110 I-K/9-13 EPA#5	29	4.55	3	1.55	0.78	1.89	1.12	3.44	1.384844313

Average Total Radium (Th-232+Ra-226) Concentration for : $\bar{x} = 3.56$ $s = 0.45$ I-K/9-13 = 3.56 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
160	11/18/02	EPA	S2111 KK-MM 5/54-56.5 EPA#1	32.9	4.46	2.3	0.45	0.62	2.13	0.88	2.58	1.076475731
161	11/18/02	EPA	S2112 KK-MM 5/54-56.5 EPA#2	32	3.11	2.14	0.85	0.57	1.21	0.82	2.06	0.998648084
162	11/18/02	EPA	S2113 KK-MM 5/54-56.5 EPA#3	31.8	7.39	1.83	1.01	0.48	-0.03	0.65	0.98	0.796303962
163	11/18/02	EPA	S2114 KK-MM 5/54-56.5 EPA#4	29.7	3.13	2.49	0.7	0.68	1.7	0.96	2.4	1.176435294
164	11/18/02	EPA	S2115 KK-MM 5/54-56.5 EPA#5	31.4	7.86	2.58	-0.58	0.65	2.32	0.97	2.32	1.167647207

Average Total Radium (Th-232+Ra-226) Concentration for :

use 0 for neg. $\bar{x} = 1.96$ $s = 0.63$
 KK-MM 5/54-56.5 = 1.96 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
165	11/18/02	EPA	S2116 E-I/1-3 EPA#1	28	6.58	2.12	1.35	0.55	1.93	0.78	3.28	0.954410813
166	11/18/02	EPA	S2117 E-I/1-3 EPA#2	28.5	5.39	2.42	1.78	0.64	1.55	0.9	3.33	1.104366019
167	11/18/02	EPA	S2118 E-I/1-3 EPA#3	29.1	1.88	2.34	2.05	0.63	0.76	0.87	2.81	1.074150827
168	11/18/02	EPA	S2119 E-I/1-3 EPA#4	28.9	3.33	2.19	0.86	0.58	2.58	0.85	3.42	1.029028888
169	11/18/02	EPA	S2120 E-I/1-3 EPA#5	28	4.78	3.17	1.7	0.83	0.88	1.15	2.58	1.418238344

Average Total Radium (Th-232+Ra-226) Concentration for :

$\bar{x} = 3.03$ $s = 0.37$
 E-I/1-3 = 3.08 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
170	11/18/02	EPA	S2121 C-E/9.5-10.5 EPA#1	32.6	4.85	2.39	0.57	0.82	1.38	0.88	1.95	1.076475731
171	11/18/02	EPA	S2122 C-E/9.5-10.5 EPA#2	34.4	6.09	3.07	1.39	0.8	1.22	1.14	2.61	1.392895228
172	11/18/02	EPA	S2123 C-E/9.5-10.5 EPA#3	31.5	5.53	2.68	0.91	0.69	1.52	0.66	2.43	1.18224363
173	11/18/02	EPA	S2124 C-E/9.5-10.5 EPA#4	32.7	4.56	2.43	1.23	0.84	0.88	0.91	2.09	1.112518663
174	11/18/02	EPA	S2125 C-E/9.5-10.5 EPA#5	31.8	2.66	2.35	1.5	0.83	1.22	0.9	2.72	1.098590008

Average Total Radium (Th-232+Ra-226) Concentration for :

$\bar{x} = 2.36$ $s = 0.33$
 C-E/9.5-10.5 = 2.36 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
175	11/18/02	EPA	S2126 KK-00/41-44 EPA#1	35.8	7.08	2.25	0.11	0.57	4.21	0.84	4.32	1.015135456
176	11/18/02	EPA	S2127 KK-00/41-44 EPA#2	34	-0.12	2.28	1.79	0.83	0.2	0.85	1.99	1.058017013
177	11/18/02	EPA	S2128 KK-00/41-44 EPA#3	35.8	6.2	2.6	1.15	0.88	1.51	0.96	2.68	1.176435294
178	11/18/02	EPA	S2129 KK-00/41-44 EPA#4	36.1	4	2.55	2.09	0.88	0.38	0.92	2.47	1.144027972
179	11/18/02	EPA	S2130 KK-00/41-44 EPA#5	35.8	7.23	2.85	0.87	0.78	2.02	1.11	2.69	1.345250806

Average Total Radium (Th-232+Ra-226) Concentration for :

$\bar{x} = 2.83$ $s = 0.88$
 KK-00/41-44 = 2.83 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
180	11/18/02	EPA	S2131 RR-SS/43-45 EPA#1	33.4	7.94	2.24	0.13	0.57	2.67	0.65	2.67	1.02342582
181	11/18/02	EPA	S2132 RR-SS/43-45 EPA#2	33.3	4.46	2.25	0.07	0.58	2.58	0.66	2.65	1.037304198
182	11/18/02	EPA	S2133 RR-SS/43-45 EPA#3	31.5	0.76	2.15	1.52	0.58	-0.17	0.61	1.35	0.996242842
183	11/18/02	EPA	S2134 RR-SS/43-45 EPA#4	32.3	5.92	1.76	0.37	0.48	1.27	0.66	1.64	0.804467414
184	11/18/02	EPA	S2135 RR-SS/43-45 EPA#5	33.6	1.48	1.96	0.35	0.52	1.61	0.76	1.96	0.920889155
Average Total Radium (Th-232+Ra-226) Concentration for : <i>if 0 for neg $\bar{x} = 2.03$ $s = 0.56$</i> RR-SS/43-45 = 2.03 pCi/g												

Note: Final 7 EPA batches were sampled on 11/15/02, but were not analyzed until 11/18/02. GAH

STS Consultants, Ltd.

750 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: (847) 279-2500
FAX: (847) 279-2510



FACSIMILE TRANSMISSION

Date: 10/18/02

Pages being transmitted, incl. Cover: 3

To:	Company Name:	Fax No.:
VERNEA SIMON	U.S. EPA	(312) 886-3601

From: Charles Braden

FAX: (312) 946-8323

Phone: (847) 344-6386 ccs

Re: LAKE SHORE EAST

☒ For Review ☒ Please Comment/Reply ☐ As Requested ☐ For Signature

Message: Exclusion zone F-5, 29-35

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FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: F-J, 29-35

Date of Verification Survey: 10/18/02

Time of Verification Survey 0900 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the U.S. EPA.

Signed:

Charles E. Brown Date 10/18/02

Charles E. Brown (Print Name)

Records Officer (Print Title)



STS Consultants, Ltd.
Solutions through Science & Engineering

The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 10/18/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Signed:

Veneta Simon Date 10/18/02

Veneta Simon (Print Name)

On-Scene Coordinator (Print Title)

For U.S. EPA Region V

Exclusion Zone Confirmatory Samples for October 18, 2002

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
53	10/18/02	EPA	S2026 F-H/32-35 EPA#1	28.2	9.09	2.78	0.08	0.71	3.11	1.04	3.19	1.259245808
54	10/18/02	EPA	S2027 F-H/32-35 EPA#2	31.4	2.03	2.28	1.09	0.6	2.92	0.87	4.01	1.056834897
55	10/18/02	EPA	S2028 F-H/32-35 EPA#3	30.9	6.18	2.04	0.59	0.53	2.77	0.77	3.38	0.9347727
56	10/18/02	EPA	S2029 F-H/32-35 EPA#4	26.9	2.98	1.88	1.53	0.5	2.59	0.72	4.12	0.87658428
57	10/18/02	EPA	S2030 F-H/32-35 EPA#5	28.7	2.24	1.86	0.33	0.5	4.37	0.74	4.7	0.893084542

Average Total Radium (Th-232+Ra-226) Concentration for : F-H/32-35 = 3.88 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
58	10/18/02	EPA	S2031 H-J/32-35 EPA#1	34.5	0.72	1.92	1.71	0.52	0.45	0.72	2.18	0.88844132
59	10/18/02	EPA	S2032 H-J/32-35 EPA#2	33.2	1.62	1.79	0.67	0.49	2.68	0.7	3.25	0.854458893
60	10/18/02	EPA	S2033 H-J/32-35 EPA#3	35.4	5.91	2.63	0	0.68	2.87	1.01	2.87	1.217579588
61	10/18/02	EPA	S2034 H-J/32-35 EPA#4	31.7	6.32	2.17	0.27	0.56	2.28	0.81	2.56	0.984733488
62	10/18/02	EPA	S2035 H-J/32-35 EPA#5	34	0.25	2.48	0.79	0.67	2.57	0.96	3.36	1.170683561

Average Total Radium (Th-232+Ra-226) Concentration for : H-J/32-35 = 2.84 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
63	10/18/02	EPA	S2036 H-J/29-32 EPA#1	29.5	3.31	1.98	0.8	0.52	2.54	0.78	3.34	0.92089155
64	10/18/02	EPA	S2037 H-J/29-32 EPA#2	30.5	3.94	2.85	1.59	0.75	1.24	1.05	2.83	1.29034879
65	10/18/02	EPA	S2038 H-J/29-32 EPA#3	30.9	3.13	2.37	0.55	0.61	1.27	0.88	2.22	1.070747403
66	10/18/02	EPA	S2039 H-J/29-32 EPA#4	30.2	-0.37	2	1.34	0.54	2.14	0.78	3.48	0.948683298
67	10/18/02	EPA	S2040 H-J/29-32 EPA#5	28.7	1	2.33	0.58	0.84	3.38	0.93	3.77	1.128837554

Average Total Radium (Th-232+Ra-226) Concentration for : H-J/29-32 = 3.13 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
68	10/18/02	EPA	S2041 F-H/29-32 EPA#1	27.2	-2	2.45	1.8	0.68	0.78	0.97	2.58	1.18480884
69	10/18/02	EPA	S2042 F-H/29-32 EPA#2	26.1	2.17	2.38	1.27	0.63	2.81	0.91	4.08	1.106797181
70	10/18/02	EPA	S2043 F-H/29-32 EPA#3	24.9	1.78	2.04	1.37	0.56	1.82	0.78	3.19	0.980208311
71	10/18/02	EPA	S2044 F-H/29-32 EPA#4	26	1.28	1.85	0.78	0.5	1.93	0.72	2.89	0.87858425
72	10/18/02	EPA	S2045 F-H/29-32 EPA#5	26.6	4.08	2.01	0.64	0.52	2.56	0.76	3.1	0.92089155

Average Total Radium (Th-232+Ra-226) Concentration for : F-H/29-32 = 3.12 pCi/g